

PRENTICE COMPUTER CENTRE

UNIVERSITY OF QUEENSLAND, ST. LUCIA, QUEENSLAND, AUSTRALIA. 4067.



NEWSLETTER

N-278

6-December-82

CONTENTS

- 1.0 Upgrade of KL10 System.
- 2.0 Reductions in Charge Rates.
- 3.0 System Availability over the Christmas Break.
- 4.0 Expiry Date on Project Programmer Numbers.
- 5.0 Maintenance Charges 1983.
- 6.0 New Phototypesetter.
- 7.0 A New Version of FORTRAN for the VAX.
- 8.0 SED - A New Screen Editor.
- 9.0 New Network Facilities.
- 10.0 Change of Node Name of Griffith Remote Station.
- 11.0 Unavailability of File Transfer Facility
Between VAX/VMS and DEC10.
- 12.0 New Version of 1022.
- 13.0 Departmental Equipment for Sale.
- 14.0 Information Concerning Courses.

Principal Service Centres

Extensions

Operations Manager	3471
Contract Programming & Feasibility Studies	3944
System Status Automatic Answering	3101
General Enquiries & Course Enrolments	3018
Training & Courses	3021

CONSULTING

PROBLEM AREA	MAIL BOX	NAME AND EXTENSION
OPERATIONS AND PROGRAMMING		
Accounts	ACCOUNTS	Carol Walker 2188
Cobol	COBOL	Richard Armstrong 2963
Commands, system use and probs	COMMANDS	Peter Akers 2951
		Ian Otto 2923
Database (VG, 1022)	DATABASE	Amelia Shanahan 2836
Fortran	FORTRAN	Robert Morrison 3022
		John Currie 2924
Graphics	GRAPHICS	Mark Williams 2962
Micros	MICROS	Brett Peterson 2836
Network	NETWORK	Bryan Claire 2960
Operations	OPERATIONS	Senior operator 3212
PDP-11 software	PDP11	Noela Meier 3023
Program Library, Tapes	LIBRARY	Leonie Roberts 3943
Statistics	STATISTICS	Betty Young 3020
Text processing, Typesetting	TEXT	Andrew Broughton 2837
Non-specific problems	OPERATIONS	Senior operator 3212

ENGINEERING AND MAINTENANCE

Development and communications	ENGIN	Graham Rees 3288
Mini/Micro support	ENGIN	Colin Lythall 3942
		Alan Langdon 2928
Mini and terminal maintenance	MAINT	Maralyn Kenley 3938

GRIFFITH UNIVERSITY:

Consulting	7561
Computer Services	7560

1.0 UPGRADE OF KL10 SYSTEM

The KL10 system is currently being upgraded to a dual processor system and will have 1024 Kwords of core and 2800 Mbytes of on-line disk storage. Communications facilities are also being enhanced to provide increased accessibility to the central system.

Director
extension 2189

2.0 REDUCTIONS IN CHARGE RATES

The following reductions in internal charge rates have been recommended to apply as from 1.3.83.

- (a) The charge for primary memory on the KL10 Computer System be reduced by 10% as from 1.3.83.
- (b) The charge for file I/O on the KL10 Computer System be reduced by 15% as from 1.3.83.
- (c) As from 1.3.83, no charge be levied on the transfer of files between the KL10 Computer System and remote computer based work stations where the transfer is made using the Prentice Computer Centre "File Access Listener" (FAL).

(Note: Recommendations (a), (b) and (c) should result in an average reduction in charges 10% on use of the KL10 computer)

- (d) As from 1.3.83, reduce the overnight charge for Post-Graduate and Academic Staff research on the VAX 11/780 system. The rate will be at 50% of the current CPU and the File I/O charge rates for work performed after 10pm Monday to Sunday inclusive.

Director
extension 2189

3.0 SYSTEM AVAILABILITY OVER THE CHRISTMAS BREAK

All three systems will be available for operator attended running between the hours of 9am and 5pm on 29, 30 and 31 December, 1982 and for unattended running at other times.

The Client Room in the Hawken Batch Station will be open during the attended running times.

Sandra Campbell
extension 3471

4.0 EXPIRY DATE ON PROJECT PROGRAMMER NUMBERS

On 24 December each year all PPN's on the DEC-10's and UIC's on the VAX expire, unless the Centre has been notified in writing that a PPN/UIC is required for another year. THE TERM "EXPIRE" MEANS THAT ALL FILES OWNED BY THAT PPN, BOTH ON-LINE AND OFF-LINE, ARE DELETED, ANY BALANCE OF COMMITMENT IS TAKEN TO 0 AND PPN AND CHARGE CODE ARE DELETED FROM THE SYSTEM.

As you can imagine then, it is very important that if you intend to keep using your account for the following year it is imperative to complete the "change of expiry date" form, prior to 24 December each year. Separate forms for KA/KL and VAX users are at the Accounts office.

We do this not make life difficult for you, but merely to keep disk space clear and overheads down. Each year many people leave the University or go away on the Special Studies Programme, or finish post graduate research and omit to notify us that they have finished with their account. Expiring accounts is our way, then, of keeping the system operating efficiently for the user's continued benefit.

Carol Walker
extension 2188

5.0 MAINTENANCE CHARGES 1983

To assist departments with 1983 budgeting for terminal and mini-computer maintenance and Telecom modem rentals we have circulated lists of charges to Departmental nominees. In the event that a nominee was missed, please contact Maralyn, extension 3938 for a copy.

Dal Anderson
extension 3166

6.0 NEW PHOTOTYPESETTER

For some years the Centre has provided a basic typesetting facility on the KL-10 computer. This allows users to produce high quality text output in a large range of type styles and sizes suitable for direct printing in books, journals etc. (Further detail on typesetting can be found in the Centre's manual "Introduction to Computerized Typesetting"). This service has only been possible because of the kind cooperation of Queensland Newspapers Pty Ltd who allowed the University to use their APS-5 phototypesetters at a very attractive rate.

Early in 1982, in response to some specific requests, the Equipment and Maintenance Committee of the University established a small working party to investigate the need for and feasibility of providing on-campus typesetting. Following the report of this group the University has decided

- (a) to order a Compugraphics 8400 phototypesetter with 80 fonts (or type faces or character styles) and associated support equipment,
- (b) to make the typesetter available on a 'user pays' basis,
- (c) to locate this typesetter in the Prentice Computer Centre,
- (d) to connect the typesetter to the KL-10 computer and utilize the existing ITPS software for processing text.

The typesetter will therefore be accessible by all terminals on the Prentice Computer Centre network.

For its part, the Centre has agreed to

- (a) produce the driving and spooling programs to interface the ITPS typesetting programs to the Compugraphics typesetter,
- (b) support typesetting with new documentation and training courses,
- (c) provide the appropriate levels of operational service to meet user needs.

The Compugraphics 8400 is a state-of-the-art digital phototypesetter using a very high resolution Cathode Ray tube to flash text onto bromide paper film. This bromide paper is then processed through developer and fixer (as for normal film) to give the final printed output. Fonts can be mixed at will (e.g. normal, bold, italics, french, greek, maths etc.) and characters can be printed in any size from 6 point to 72 point. ('Point size' is a typesetting term but, very roughly, it is the distance from the bottom of the lowest letter in a given style of type to the top of the highest letter, e.g. from the top of 'h' to the tail of 'g' in the word

'highest'. 6 point is about 2mm and 72 point is about 25mm).

The machine can output text at up to 270,000 characters per hour. Lines of text can be up to 12" long and text will, of course, be correctly justified and hyphernated.

The typesetter should be installed early in the New Year (1983) and, following software testing and acceptance, the facility will be available for general use in first semester 1983. For current users of the typesetting service the only differences will be faster turnaround, a larger range of fonts and, hopefully, reduced costs.

As part of this development the Centre has already introduced a new editor, SED, on the KL-10. This editor is ideal for word processing type applications.

For the longer term, the Centre plans further developments of the text processing facilities including:

- (a) implementing the Knuth T_EX package to provide mathematical typesetting facilities
- (b) interface software for the transfer of word processor files to the typesetting system
- (c) development of 'preview' screens so that typeset material can be viewed in correct size and layout before output to the setter.

Details and costs of this new facility will be announced in later newsletters. In the meantime, queries may be directed to Tony Bird (x3944), Andrew Broughton (x2837) or

John Noad
extension 3017

7.0 A NEW VERSION OF FORTRAN FOR THE VAX

This article describes the compatibility between previous versions of VAX-11 FORTRAN and VAX-11 FORTRAN Version 3 and the new features supported by Version 3.

/CHECK Qualifier Changes - The /CHECK qualifier causes the following new run-time checks:

- . The /CHECK=BOUNDS qualifier checks for out-of-range substring bounds, as well as for out-of-range subscript calculations.

- . The /CHECK=UNDERFLOW qualifier checks for floating-underflow exceptions.
- . The /CHECK qualifier (with no arguments specified) performs all run-time checking, including substring-bounds-range, floating-underflow, subscript-range, and integer-overflow checking.
- . By default, bounds and underflow checking are disabled.

Existing programs are not affected unless they are recompiled with an explicit /CHECK or /CHECK=BOUNDS qualifier. A fatal error at run-time occurs if an old program containing an out-of-range substring bound is recompiled with the /CHECK or /CHECK=BOUNDS qualifier. An error message is now generated if /CHECK is specified for a program that generates a floating-underflow exception. However, programs with underflow still produce the same numeric results as under Version 2.

Improved Math Routines

The accuracy of the following math routines has been improved significantly:

- . SIN
- . COS
- . LOG
- . ATAN
- . ASIN
- . ACOS

Namelist-Directed I/O Statements

The following statements provide namelist-directed I/O:

- . The NAMELIST statement
- . The READ, WRITE, ACCEPT, TYPE, and PRINT statements, with a namelist specifier in place of format and I/O lists.

Refer to the VAX-11 FORTRAN Language Reference Manual.

Trigonometric Functions in Degrees

The following trigonometric functions take arguments in degrees:

Function	Description
SIND, DSIND, QSIND	Sine functions with degree arguments
COSD, DCOS, QCOSD	Cosine functions with degree arguments
TAND, DTAND, QTAND	Tangent functions with degree arguments

ASIND, DASIND, QASIND	Arc sine with degree result
ACOSD, DACOSD, QACOSD	Arc cosine with degree result
ATAND, DATAND, QATAND	Arc tangent with degree result
ATAN2D, DATAN2D, QATAN2D	Two-argument arc tangent with degree result

Refer to the VAX-11 FORTRAN Language Reference Manual.

Bit Functions

The following additional bit-manipulation intrinsic functions have been added:

- . IBSET sets a bit.
- . BTEST tests a bit.
- . IBCLR clears a bit.
- . IBITS extracts a bit field.
- . ISHFTC performs a circular shift.
- . MVBITS moves a bit field.

Refer to the VAX-11 FORTRAN Language Reference Manual.

Debugger Commands for Source Code Debugging

A new interface allowing FORTRAN users to access the debugger source code display facility has been provided. The following debugger commands can now be used:

- . SET STEP SOURCE
- . TYPE range
- . EXAMINE/SOURCE
- . SEARCH [range] "string"
- . SET SOURCE

Refer to the VAX-11 Symbolic Debugger Reference Manual.

A Cross-Reference Listing

The new FORTRAN qualifier /CROSS-REFERENCE provides an optional cross-reference as part of listing file. Refer to the VAX-11 FORTRAN User's Guide.

Checking for Extensions to the FORTRAN-77 Standard

The new FORTRAN qualifier /STANDARD provides optional checking for source code that does not conform to the FORTRAN-77 standard. Refer to the VAX-11 FORTRAN User's Guide.

DEFAULTFILE Keyword in the OPEN Statement

The DEFAULTFILE keyword has been added to the OPEN statement. DEFAULTFILE allows you to specify a default file name that overrides the general FORTRAN defaults. Refer to the VAX-11 FORTRAN Language Reference Manual.

IMPLICIT NONE Statement

The IMPLICIT statement now has a second format:

IMPLICIT NONE

The IMPLICIT NONE statement invalidates all implicit defaults and causes error messages to be generated for names that are not explicitly typed in a type declaration statement. Refer to the VAX-11 FORTRAN Language Reference Manual.

FORTRAN Definitions for System Symbols

A text library FORSYSDEF.TLB containing the FORTRAN definitions for system symbols is now provided. Refer to the VAX-11 FORTRAN User's Guide.

/SHOW Qualifier

The /SHOW qualifier controls listing options for INCLUDE files, preprocessor-generated output, and the symbol table map. Refer to the VAX-11 FORTRAN User's Guide.

The qualifier has the form:

```
/SHOW =  ALL
          NONE
          ([NO]INCLUDE, [NO]MAP, [NO]PREPROCESSOR)
```

where:

ALL

Specifies that all optionally listed source lines are to be included in the listing file.

NONE

Specifies that no optionally listed source lines are to be included in the listing file.

N-278

INCLUDE

Specifies that the source lines from the files specified by any INCLUDE statements are to be included in the source listing.

MAP

Specifies the inclusion of the symbol map in the listing file.

PREPROCESSOR

Specifies that preprocessor-generated source lines are to be included in the listing file. The negative form, /NOPREPROCESSOR, specifies that the source lines are to be excluded from the source listing.

The default is /SHOW=(NOINCLUDE, MAP, NOPREPROCESSOR).

Ian Burgess
extension 2959

8.0 SED - A NEW SCREEN EDITOR

SED is a powerful screen editor written by Christopher Hall, a programmer working for Digital.

Christopher has had over 10 years of experience working on different screen editors, ranging from an editor called "E" used at Yale in the early seventies, through an editor called "RE" written for the Rand Corporation which ran under UNIX, to his current involvement in SED.

SED was originally written in 1978, and was based on the Yale editor. Since then it has been greatly expanded to incorporate many of the features of the Yale and Rand editors, and quite a few new ideas. SED will run either on a TOPS-10 or a TOPS-20 machine.

SED is easily adaptable to a wide range of terminals. The core of SED is terminal independent and it communicates with the outside world via an input and an output translation table. This means that any user can have their own version of SED, using their own keyboard layout just by writing a small MACRO-10 file containing these tables. Obviously, if everyone did this it would be rather wasteful with system resources. SED, as supplied, is set-up to support VT100's and VT52's. This version of SED is now available on NEW:. To edit a file using SED you type

```
.R NEW:SED;file.ext<cr>
```

To create and edit a file using SED you type

```
.R NEW:SED;file.ext=<cr>
```

SED is documented with a tutorial, a reference manual, and a help file. Help is also available while running SED. Should you be interested in reading any of this documentation you should print the appropriate files from the following list.

```
HLP:SED.HLP - short help file
DOC:SEDV52.MAN - tutorial for VT52 users
DOC:SEDV10.MAN - tutorial for VT100 users
DOC:SEDV52.DOC - reference for VT52 users
DOC:SEDV10.DOC - reference for VT100 users
```

During testing SED was found to be slightly more expensive than QEDIT, but it provided many sophisticated features. SED is not a Digital product, but is still being enhanced by its author, so future versions will be even better. The version we have appears very stable, but if you do wish to use SED seriously, and stumble across any bugs please let me know.

Andrew Broughton
extension 2837

9.0 NEW NETWORK FACILITIES

Version 3 of VAX/VMS which was recently installed includes phase III DECNET. This release makes available some new facilities:

1. .SET HOST from VMS to an RSX or VMS system. This is very similar to SET HOST on the DEC10 but requires LOGIN on VMS. This facility allows any terminal on the VAX/VMS to "connect" to an RSX11M system which is a node of the campus network provided the RSX11M system is running DECNET-11M phase III, the HT driver is loaded and REMACP is installed.
2. From RSX11M systems which are part of the campus network logged in users may "connect" to VAX/VMS by giving the command

```
RVT UQVAX
```

3. From RSX11M systems which are part of the campus network logged-in users may connect to other RSX11M systems on the campus network by giving the command

RMT name

where name is the node name of the RSX11M system to which connection is desired.

4. File transfers from RSX11M systems to VAX/VMS or to other RSX11M systems. These transfers are performed by the NFT (Network File Transfer) utility. NET can also be used to delete files on another node, list directories, append to already existing files and execute command files.
5. File transfers from VAX/VMS to RSX11M systems. The VMS file system knows about networks and any operation referencing a file may specify a file at a remote node.

9.1 Protection Mechanisms - Interactive Use

All terminals which establish a connection to another system are required to go through the same login procedure (if any) that is required of terminals directly connected to that system. The system manager of any RSX11M system can prevent interactive access from other systems by not loading the HT driver.

9.2 Protection Mechanisms - File Transfer

All file references to another system must quote a user-id and password. The password and user-id must match an entry in the accounting file of the referenced system else the file operation will fail. Then if the password and user-id match an accounting file entry, the operation is allowed only if it would have been allowed for the specified user logged in on the referenced node.

9.3 Specifying Access Control Information To NFT

Control information for the access of files on another node is specified in the form

node-name/user-id/password::

for example the NFT command

NFT>TI:=CIVENG/TROY/HELEN::LOGIN.COM

will type the file LOGIN.COM from the default logged-in directory of user TROY on node CIVENG but only if the accounting file on node CIVENG includes an entry for user TROY with password HELEN.

9.4 Specifying Access Control Information To VAX/VMS

On VAX/VMS access control information is specified by following the node name by a quoted string containing the user-id followed by a blank or tab followed by the password.

For example, the VAX/VMS command

```
$ TYPE CIVENG "TROY HELEN":LOGIN.COM
```

is the VAX/VMS equivalent of the NFT command given above.

Further information on the VAX/VMS network facilities is contained in the DECnet-VAX User's Guide (DEC manual order no. AA-H802B-TE).

Further information on the RSX11M utilities RMT and NFT is contained in the RSX DECnet Guide to User Utilities (DEC order no. AA-H223B-TC).

Arthur Hartwig
extension 2958

10.0 CHANGE OF NODE NAME OF GRIFFITH REMOTE STATION

The name of the Griffith University remote station will change from GUAES to GRIFIN no later than Tuesday, 4 January 1983. The node number will remain the same (50).

Arthur Hartwig
extension 2958

11.0 UNAVAILABILITY OF FILE TRANSFER FACILITY

BETWEEN VAX/VMS AND DEC10

The file transfer facility (using the NETACC program) between the DEC10 and VAX/VMS systems will be "unavailable" each morning until noon (Monday to Friday). This is to allow testing of new communications software. The testing may require the reloading of an intermediate computer on the communications link. Users are requested not to even attempt to perform file transfers between the DEC10 and VAX/VMS systems before noon as such attempts will interfere with the

testing.

The testing should not affect any other aspect of the operation of the VAX/VMS system, so it will be available for interactive and batch use as normal.

Arthur Hartwig
extension 2958

12.0 NEW VERSION OF 1022

Version 115 of 1022, a data base management system, has arrived and will be available on NEW: from 23 December. The major features of the new version are:

1. Accepts TOPS-10 full file specifications. This includes SFDs for many commands. A full TOPS-10 filespec has the format:

device:filnam.ext[100,200,SFD1,...SFD5]<057>

Valid commands are USE, INFORM ON, VALUES ON, PRINT ON, INIT, FILE commands, SAVE and FIND FILE.

2. Version 115 includes twelve new system variables which can be used to pass values between host language programs and 1022 through calls to DBEXEC. The values are stored and retrieved with DBSYSV. The value-passing variables are listed below:

TYPE	NAME	NUMBER
INTEGER	SYSUSERI1	45
	SYSUSERI2	46
	SYSUSERI3	47
REAL	SYSUSERR1	48
	SYSUSERR2	49
	SYSUSERR3	50
TEXT 5	SYSUSERT5	51
TEXT 10	SYSUSERT10	52
TEXT 40	SYSUSERT40	53
DATE	SYSUSERD1	54
	SYSUSERD2	55
	SYSUSERD3	56

The variable SYSUSERT5 can contain up to 5 characters, SYSUSERT10 can contain up to 10, and SYSUSERT40 can contain up to 40.

12.1 Documentation

The current documentation for 1022 is:

1. User's Reference Manual, Revision 1, October 1980. A revised manual will be available with the next release of 1022. This contains complete information about the use of 1022. To access this manual, print DOC:MANUAL.MEM. (Warning: this is a large file).
2. Host Language Interface User's Reference Manual, Revision 2, October 1981. This contains information needed to write and run FORTRAN, COBOL and MACRO application programs using the SYSTEM 1022 subroutine library. This file is available on DOC:HOST.MEM.
3. Report Writer Manual. This contains a collection of reports and detailed descriptions of each to illustrate how custom reports are written. It supplements the Reports Chapter in the User's Reference Manual. It is available on DOC:REPMAN.MEM.
4. System 1022 Reference Book. This is a pocket guide to using 1022. A limited number have been ordered.
5. 115.MEM. New features and improvements in 115. It includes documentation changes that have not been made in the User's and Host manuals. It is available on DOC:115.MEM.
6. 1022.BWR. Warnings of version incompatibilities and use problems for the current release. It is available on DOC:1022.BWR.
7. 1022 PRIMER. This manual is ideal for novice 1022 users. A limited number of manuals have been ordered from the supplier.

This version will supercede the version on SYS on 28 January. All users of 1022 are advised to test their programs with the version on NEW before 28 January and report any inconsistencies.

Lee MacDonald
extension 3943

13.0 DEPARTMENTAL EQUIPMENT FOR SALE

DEC 1972 PDP-8f with 20K core and dual TD8E DEC-Tape (maintained by UQ Prentice Computer Centre) and Teletype ASR-33 (maintained by STC). Software: OS8.V3C with micro-fiche listings. Running BASIC, BATCH, TECO, XRX, FORTX, INVENT, SSP6-7, FOCAL, etc. Manuals, handbooks etc. Enquiries telephone Department of Surveying, University of Queensland 377 2996.

Surveying Department
extension 2996

14.0 INFORMATION CONCERNING COURSES

The following programme of courses has been tentatively set for the pre-Semester I period of 1983. Enrolments will be accepted for all the advertised courses and those enrolled will be advised if subsequent changes have to be made to the dates of courses. It is also possible that some additional courses may be added to this provisional schedule.

January 1983

Introduction to PDP-10	: January 10-11 2 full days 9-12am + 1-4pm each day
VAX Conversion Course	: January 12 1 full day 9-12am + 1-4pm each day
Introduction to PDP-10	: January 13-14 2 full days 9-12am + 1-4pm each day
Introduction to PDP-10 (GU)	: January 13-14 2 full days 9-12am + 1-4pm each day
RUNOFF	: January 17-21 5 half days 9-12am each day
SPSS	: January 17-21 5 half days 1-4.20pm each day
1022	: January 24-28 5 half days 9-12am each day
SPSS (GU)	: January 24-28 5 half days 1.30-5pm each day

February

- VG : February 7-11
5 half days 9-12am each day
- Elementary BASIC : February 7-11
Programming 5 half days 1-4.30pm each day
- Statpack : February 14
1 full day 10-12am + 1-3pm

General Notes

1. The course "Introduction to PDP-10" is intended for new users and those with no previous experience with the DEC-10 system. Users without this experience must attend this course before enrolling in any other course.
2. All courses are free of charge to staff and post-graduate students of both University of Queensland and Griffith University. All other users must pay the appropriate fee, viz:

VAX Conversion Course	: \$20.00
Plotting/Graphics	: \$30.00
Introduction to PDP-10	: \$40.00
1022, VG	: \$50.00
RUNOFF, BASIC, SPSS	: \$60.00
FORTTRAN	: \$100.00
3. Courses designated (GU) will be held in the AES Terminal Laboratory at Griffith University. All other courses will be conducted in the Hawken Building, St Lucia.
4. To ensure sufficient practical experience is obtained, enrolments at all courses are limited. If enrolled for a course, which you are unable to attend, please advise us as soon as possible so that your place may be taken by someone on a waiting list. When insufficient enrolments are received for any course, that course may be cancelled by the Centre.
5. Enrolments for all courses may be made by phoning extension 3018.

Barry Maher
extension 3021

```
* * * * *
*                                     *
*                                     *
*                                     *
*          CHRISTMAS GREETINGS      *
*          *****                  *
*                                     *
* The Director and Staff of the Prentice *
* Computer Centre extend Seasons Greetings *
* to all with a wish for Happy Computing *
*          in 1983.                  *
*                                     *
* * * * *
```